AII2022 Competition on
" Human Pose Estimation "

Co-located with the
2nd International Conference of Applied Intelligence and Informatics
(AII2022, www.aii2022.org)

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About the conference:

This competition is held as part of the 2nd International Conference on Applied Intelligence and Informatics – AII2022 (www.aii2022.org). The conference provides a premier international forum to bring together researchers and practitioners from diverse domains for the sharing of cutting-edge research results obtained through the application of intelligence and/or informatics to solve problems that otherwise would not have been possible to solve. AII2022 also fosters the exchange and dissemination of innovative and practical development of methodologies and technologies with real-life applications. AII2022 asks all authors to make their dataset and methodology open access for community usage. This is to: Foster the Reproducibility of Scientific Results, hence is the theme of the conference. The conference will be held in Reggio Calabria, a beautiful seaside city located in the southernmost tip of Italy.

About the problem:

Human pose classification is one of the challenging computer vision problems which has potential applications in various fields such as visual surveillance, behavioral analysis, assisted living, and intelligent driver assistance system [1, 2].

Important Dates:

- Submission deadline: **1st May 2022 (No extension)**
- Winners Announcement: 2nd May 2022
- AII2022 in Reggio Calabria, Italy: 1st – 3rd September 2022

Benefits: The top three winners of the competition will have the below benefits:

- Free registration to the conference.
- 14 days extra to submit their paper.
- A certificate with the indication of the position in the ranking list (1st, 2nd, 3rd)

Fig-1: Various Human Poses (Yoga postures)

About the dataset:
To handle more variety in human poses, we are using a fine-grained hierarchical pose classification dataset named Yoga-82 for this competition proposed by [1, 2]. This dataset formulates the pose estimation as a classification task. The Yoga-82 database has samples belonging to 82 different classes (yoga poses). The dataset provides hierarchical labels for yoga poses based on the body configuration of the pose. The dataset contains a three-level hierarchy including body positions, variations in body positions, and the actual pose names. There are 6, 20, and 82 classes in the first-, second-, and third levels, respectively.

The output category labels are a three-level hierarchical structure where the third level is a leaf node corresponding to any yoga poses class. There are 6, 20, and 82 classes in the first-, second-, and third levels, respectively as illustrated in the Fig.2. The top level of classification corresponds to standing, Sitting, Balancing, Inverted, Reclining, and Wheel positions. Similarly, the second and third level of classification can be inferred from Fig.2.

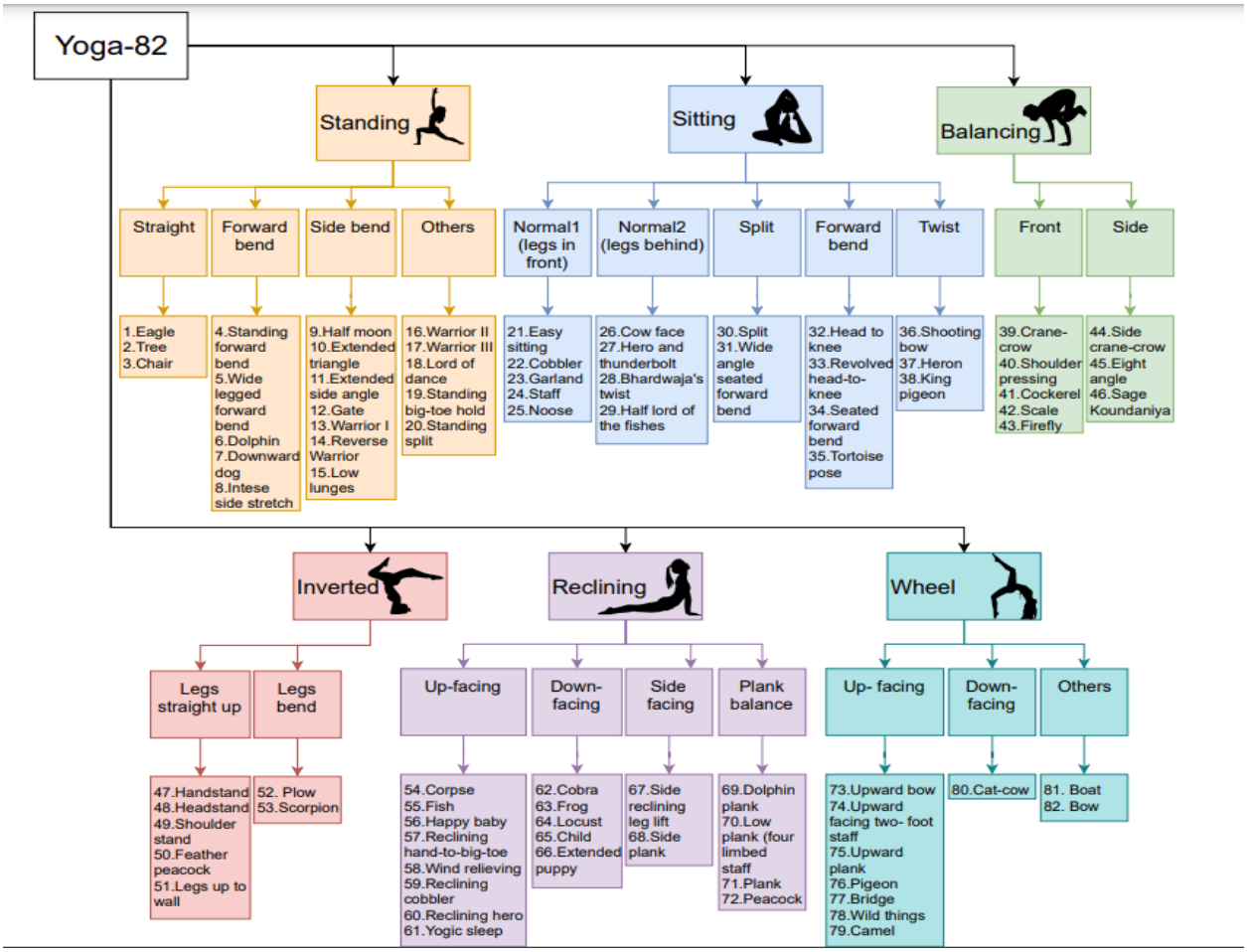

Fig-2: Yoga-82 dataset label structure. Hierarchical class names at level 1, 2, and 3 (Pic taken from [1, 2]

Concretely, this dataset maps a sample human pose image to a set of 3 output hierarchical labels. The top-level of classification corresponds to standing, Sitting, Balancing, Inverted, Reclining, and Wheel positions. The second label corresponds to variation in body position. This has 20 various body positions. Finally, the third label indicates the actual pose name which has 82 different poses.

Below figure gives sample images and their ground truth for your reference:

Fig-3: Some Yoga-poses and their hierarchical classification labels

The below table presents the unique labels corresponding to 82 different Yoga poses in the provided dataset.

0_0_18	1_4_41	2_9_50	4_15_54
0_0_68	1_4_57	2_9_53	4_15_56
0_0_8	1_4_59	3_11_23	4_16_15
0_1_16	1_5_1	3_11_32	4_16_26
0_1_17	1_5_13	3_11_37	4_16_42
0_1_36	1_5_30	3_11_63	4_16_44
0_1_60	1_5_72	3_11_64	5_17_43
0_1_77	1_6_58	3_12_45	5_17_5
0_2_21	1_6_76	3_12_51	5_17_6
0_2_22	1_7_34	4_13_12	5_17_69
0_2_29	1_7_49	4_13_25	5_17_70
0_2_31	1_7_52	4_13_33	5_17_71
0_2_40	1_7_67	4_13_48	5_17_78
0_2_75	1_8_0	4_13_65	5_18_7
0_2_81	1_8_35	4_13_66	5_19_2
0_3_39	1_8_47	4_13_79	5_19_4
0_3_61	2_10_19	4_13_80	
0_3_62	2_10_46	4_14_10	
0_3_73	2_10_55	4_14_20	
0_3_74	2_9_11	4_14_27	
1_4_28	2_9_14	4_14_38	
1_4_3	2_9_24	4_14_9	

Reference:

1) Verma, Manisha, Sudhakar Kumawat, Yuta Nakashima, and Shanmuganathan Raman. "Yoga-82: a new dataset for fine-grained classification of human poses." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops, pp. 1038-1039. 2020.

2) The Yoga82 database homepage, https://sites.google.com/view/yoga-82/home.